Name:_____ Block:_____ Date:_____

Science 10 **4.2 Names and Formulas of Ionic Compounds**

1. Write the formulas of the following compounds containing multivalent metals.

	Ionic Compound	Ion symbol & charge	Formula
a.	copper (I) nitride	$Cu^{+}N^{3-}$	Cu_3N
b.	iron (II) phosphide	$Fe^{+2}P^{-3}$	Fe_3P_2
c.	manganese (II) oxide	$Mn^{+2}O^{-2}$	MnO
d.	manganese (IV) oxide	$Mn^{+4}O^{-2}$	MnO_2
e.	chromium (II) bromide	$Cr^{+2}Br^{-}$	$CrBr_2$
f.	chromium (III) bromide	$Cr^{+3}Br^{-}$	$CrBr_3$
g.	lead (IV) chloride	$Pb^{+4}Cl^{-}$	$PbCl_4$
h.	iron (III) phosphide	$Fe^{+3}P^{-3}$	FeP
i.	tin (II) sulfide	$Sn^{+2}S^{-2}$	SnS
j.	tin (II) nitride	$Sn^{+2}N^{-3}$	Sn_3N_2
k.	tin (IV) nitride	$Sn^{+4}N^{-3}$	Sn_3N_4
l.	mercury (II) fluoride	$Hg^{+2}F^{-}$	HgF_2
m.	copper (II) selenide	$Cu^{+2}Se^{-2}$	$CuSe$

2. Write the ion symbol, charge and the names of the following compounds.

	Formula	Ion symbol & charge	Ionic Compound
a.	Fe_2O_3	$Fe^{3+}O^{2-}$	iron (III) oxide
b.	PbF_4	$Pb^{+4}F^{-}$	Lead (IV) fluoride
c.	FeI_2	$Fe^{+2}I^{-}$	Iron (II) iodide
d.	HgI_2	$Hg^{+2}I^{-}$	Mercury (II) iodide
e.	Hg_3N_2	$Hg^{+2}N^{-3}$	Mercury (II) nitride
f.	Sn_3P_4	$Sn^{+4}P^{-3}$	Tin (IV) phosphide
g.	MnS	$Mn^{+2}S^{-2}$	Manganese (II) sulphide
h.	MnS_2	$Mn^{+4}S^{-2}$	Manganese (IV) sulphide
i.	VCl_5	$V^{+5}Cl^{-}$	Vanadium (V) chloride
j.	Ni_2S_3	$Ni^{+3}S^{-2}$	Nickel (III) sulphide
k.	NiS	$Ni^{+2}S^{-2}$	Nickel (II) sulphide
l.	Mo_2O_3	$Mo^{+3}O^{-2}$	Molybdenum (III) oxide
m.	UCl_6	$U^{+6}Cl^{-1}$	Uranium (VI) chloride
n.	ReF_7	$Re^{+7}F^{-1}$	Rhenium (VII) fluoride
o.	TiS_2	$Ti^{+4}S^{-2}$	Titanium (IV) sulphide

Refer to data book (or p.192) on Polyatomic Ions as you do #3 and #4

3. Write the names of the following compounds with polyatomic ions.

a) KCH_3COO Potassium acetate b) $Ca(CH_3COO)_2$ calcium acetate

c) $(NH_4)_3P$ ammonium phosphide d) $(NH4)_3PO_4$ ammonium phosphate.

e) $Al(OH)_3$ Aluminium hydroxide f) $Fe(OH)_3$ Iron (III) hydroxide

g) K_2CrO_4 Potassium chromate h) $K_2Cr_2O_7$ Potassium dichromate

i) $Ca(HCO_3)_2$ Calcium bicarbonate (Calcium hydrogen carbonate) j) $Mg_3(PO_4)_2$ Magnesium phosphate

4. Write the formulas of the following compounds containing polyatomic ions.

	Ionic Compound	Ion symbol & charge	Formula
a.	potassium permanganate	$K^+ MnO_4^-$	$KMnO_4$
b.	sodium chromate	$Na^+ CrO_4^{-2}$	Na_2CrO_4
c.	ammonium nitrate	$NH_4^+ NO_3^-$	NH_4NO_3
d.	lithium hydroxide	$Li^+ OH^-$	$LiOH$
e.	aluminum hydroxide	$Al^{+3} OH^-$	$Al(OH)_3$
f.	lead (II) perchlorate	$Pb^{+2} ClO_4^-$	$Pb(ClO_4)_2$
g.	iron (III) hydrogen sulfide	$Fe^{+3} HS^-$	$Fe(HS)_3$
h.	vanadium (V) nitrate	$V^{+5} NO_3^-$	$V(NO_3)_5$
i.	magnesium acetate	$Mg^{+2} CH_3COO^-$	$Mg(CH_3COO)_2$
j.	tin(II) cyanide	$Sn^{+2} CN^-$	$Sn(CN)_2$

5. Write the formulas of the following ionic compounds. (p. 201 #7)

	Ionic Compound	Ion symbol & charge	Formula
a.	sodium bromide	$Na^+ Br^-$	$NaBr$
b.	calcium fluoride	$Ca^{+2} F^-$	CaF_2
c.	iron(III) bromide	$Fe^{+3} Br^-$	$FeBr_3$
d.	gold (I) iodide	$Au^{+1} I^-$	AuI
e.	vanadium (V) oxide	$V^{+5} O^{-2}$	V_2O_5
f.	molybdenum (III) nitride	$Mo^{+5} N^{-3}$	Mo_3N_5
g.	ammonium phosphate	$NH_4^+ PO_4^{-3}$	$(NH_4)_3PO_4$
h.	potassium nitrate	$K^+ NO_3^-$	KNO_3
i.	manganese (II) perchlorate	$Mn^{+2} ClO_4^-$	$Mn(ClO_4)_2$

6. Write the names of each of the following compounds. (p. 201 #8 – watch out for roman numerals!)

	Formula	Ion symbol & charge	Ionic Compound (only 2 words)
a.	LiF	$Li^+ F^-$	Lithium fluoride
b.	MgI_2	$Mg^{+2} I^-$	Magnesium iodide
c.	Fe_2O_3	$Fe^{+3} O^{-2}$	Iron (III) oxide
d.	Ag_3N	$Ag^+ N^{-3}$	Silver nitride
e.	Au_3N	$Au^{+1} N^{-3}$	Gold (I) nitride
f.	$Pt(SO_4)_2$	$Pt^{+4} SO_4^{-2}$	Platinum (IV) sulphate
g.	$(NH_4)_2CO_3$	$NH_4^+ CO_3^{-2}$	ammonium carbonate
h.	$CsNO_3$	$Cs^+ NO_3^-$	Cesium nitrate.

110